

What is claimed is:

1. A fuel cell with improved voltage reversal tolerance, said fuel cell comprising a cathode, an electrolyte, and an anode, and said anode comprising a supported catalyst, wherein the
5 loading of said catalyst on said support is greater than about 40% by weight.
2. The fuel cell of claim 1 wherein said electrolyte is a solid polymer and said fuel cell is a solid polymer electrolyte fuel cell.
3. The fuel cell of claim 1 wherein said catalyst comprises platinum.
4. The fuel cell of claim 1 wherein said support comprises carbon.
5. The fuel cell of claim 4 wherein said support comprises acetylene or furnace carbon black.
6. A fuel cell with improved voltage reversal tolerance, said fuel cell comprising a cathode, an electrolyte, and an anode, and said anode comprising a supported catalyst wherein the
5 catalyst covers greater than about 6% of the surface of said support.

7. The fuel cell of claim 6 wherein the catalyst covers greater than about 9% of the surface of said support.

8. A fuel cell with improved voltage reversal tolerance, said fuel cell comprising a cathode, an electrolyte, and an anode, and said anode comprising a supported catalyst, wherein the
5 catalyst/support interface perimeter is less than about 10^{11} m per gram of catalyst.

9. The fuel cell of claim 8 wherein the catalyst/support interface perimeter is less than about 4×10^{10} m per gram of catalyst.

10. A fuel cell with improved voltage reversal tolerance, said fuel cell comprising a cathode, an electrolyte, and an anode, and said anode comprising a supported catalyst wherein said
5 support is more resistant to oxidative corrosion than carbon black.

11. The fuel cell of claim 10 wherein said support comprises a graphitic carbon characterized by a d_{002} spacing of less than 3.56 Å.

12. The fuel cell of claim 10 wherein said support comprises a graphitic carbon characterized by a d_{002} spacing of about 3.45 Å.

13. The fuel cell of claim 10 wherein said support comprises a graphitic carbon characterized by a BET surface area of less than 230 m²/g.

14. The fuel cell of claim 10 wherein said support comprises a graphitic carbon characterized by a BET surface area of about 86 m²/g.

15. The fuel cell of claim 10 wherein said support comprises Ti₄O₇.

16. A method of making a fuel cell more tolerant to voltage reversal, said fuel cell comprising a cathode, a solid polymer electrolyte, and an anode, and said anode comprising a
5 supported catalyst, wherein said method comprises increasing the loading of said catalyst on said support to be greater than about 40% by weight.

17. A method of making a fuel cell more tolerant to voltage reversal, said fuel cell comprising a cathode, a solid polymer electrolyte, and an anode, and said anode comprising a
5 supported catalyst, wherein said method comprises increasing the catalyst coverage of the surface of said support to be greater than about 6%.

18. The method of claim 17 comprising increasing the catalyst coverage of the surface of said support to be greater than about 9%.

19. A method of making a fuel cell more tolerant to voltage reversal, said fuel cell comprising a cathode, a solid polymer electrolyte, and an anode, and said anode comprising a
5 supported catalyst, wherein said method comprises decreasing the catalyst/support interface perimeter to be less than about 10^{11} m per gram of catalyst.

20. The method of claim 19 comprising decreasing the catalyst/support interface perimeter to be less than about 4×10^{10} m per gram of catalyst.

21. A method of making a fuel cell more tolerant to voltage reversal, said fuel cell comprising a cathode, a solid polymer electrolyte, and an anode, and said anode comprising a
5 supported catalyst, wherein said method comprises employing a support for said catalyst that is more resistant to oxidative corrosion than carbon black.